RELATIONSHIP BETWEEN HEALTHY LIFESTYLE BEHAVIOURS AND QUALITY OF LIFE: AN ANALYSIS OF HIGH SCHOOL LICENSED ATHLETES

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ABSTRACT

This cross sectional descriptive survey study intended to assess the healthy lifestyle behaviours of high school students by investigating whether the development of healthy lifestyle behaviours on the part of the students, lead to an increase in their quality of life. Furthermore, understanding whether engagement in sports as a licensed athlete leads to any difference in terms of healthy lifestyle behaviours and quality of life was included. Data was collected from 824 high school students using "Personal Information Form", "Health Promoting Lifestyle Profile-II (HPLP-II)", and the Pediatric Quality of Life Inventory (PedsQL-Adolescent Form)". The analysis included descriptive statistics, one-way analysis of variance (one-way ANOVA), MANOVA and Pearson correlation analyses. In terms of Healthy Lifestyle Behaviour Total Score those who do sports with a license ($\chi=126.28$) were significantly higher than those who do not ($\chi=116.14$). The average total quality of life score was regarded as a high score. A weak correlation was observed between the healthy lifestyles and levels of quality of life. The students who engaged in sports as licensed athletes were found to have significantly higher levels of healthy lifestyle behaviours and quality of life.

***Keywords**: Healthy Lifestyle Behaviours; Sports; Quality of life.*

INTRODUCTION

Adolescence (10-19 years of age) is a process which the individual go through with substantial psychological, physiological and social changes (CDC, 2015), and undergo the transition from childhood to adulthood through socialisation and experience the development of personality (Çuhadaroğlu, 2000). This process is particularly crucial for attitudes and behaviour concerning health. Insufficient physical activity, obesity, depression, violence, diet disorders, accidents, high-risk sexual behaviour, alcohol, tobacco and drug addiction are the most common health issues affecting adolescents (Aras *et al.*, 2007; Kürtüncü *et al.*, 2015; WHO, 2015).

The expression of lifestyle refers to a number of behaviours often expressed as modes of consumption, characterising the individual's and the social group's compliance with social norms (Azuara, 2014; Honório *et al.*, 2019). The health promoting lifestyle profile (HPLP), in

turn, is defined as the process whereby the individual: establishes control over all behaviour affecting health and provide the means for self-regulation by choosing behaviour consistent with one's health state in the context of managing daily life activities (Özkan & Yılmaz, 2008; Kılınç et al., 2016). By embracing a healthy lifestyle, individuals can maintain and enhance their own health (Cockerham, 2013). That is why developing and maintaining a healthy lifestyle is key to preserving health and preventing illness. This point also suggests the significance of developing a consistent and well-thought out lifestyle as a key factor in preventing illness and promoting health (Zaybak & Fadiloğlu, 2004).

The other central variable investigated in the present study, namely quality of life, is a multi-dimensional concept reflecting the implementation and realisation of daily life events; covering various physical, psychological, social and vocational/educational issues (Wilkins *et al.*, 2004). A wide range of factors affect quality of life. One of the most important concepts that has a positive effect on the quality of life is physical activity. Regular physical activity can protect children from harmful habits, and in so doing, enhance their health and contribute to their socialisation. It can also help prevent and treat various chronic conditions adults often suffer from, by helping overcome the illness with the least amount of hassle possible. In a nutshell, regular physical activity can substantially enhance the individual's quality of life from birth to death (Bek, 2008).

The basic argument the present study intends to test is that individuals can enjoy increased levels of quality of life by developing healthy lifestyle behaviours (Marques *et al.*, 2019). Various studies in the literature suggest that sports have a positive effect on the physical and mental health of the individual (Gaston-Gayles & Hu, 2009; Chuan *et al.*, 2013; Muñoz-Bullón *et al.*, 2017; Pedersen *et al.*, 2017).

Existing studies on healthy lifestyle behaviours and quality of life usually focus on university students and individuals in the 17-35 age group (Akyüz *et al.*, 2017; Gil-Madrona *et al.*, 2019; Honório *et al.*, 2019; Kotarska *et al.*, 2019; La Cascia *et al.*, 2019; Liguori *et al.*, 2019). Furthermore, studies assessing healthy lifestyle behaviours combined with quality of life (with larger samples) are rather rare and limited in number (Chaoyang *et al.*, 2007; Badr *et al.*, 2013; Savoy *et al.*, 2015). This fact can render the results of the present study of particular relevance.

In a study titled. 'The relationship between self-respect and healthy lifestyle behaviors on part of teenagers, and high-risk health-related behavior and certain socio-demographic characteristics', Dil *et al.* (2015) found, with a study group comprised of 1001 high school students, that the students who had not engaged in sports at all had an average HPLP score of 123.80±19.04, compared to an average HPLP score of 132.20±17.95 among the students who spend 1-5 hours a day in sports.

In a dissertation titled, 'Healthy lifestyle behaviours among teenagers, perceived control of the parents, and the relationship between depression and obesity: Factors providing protection against and increasing the risk of obesity', Uzun (2015) found the average HPLP score of 625 high school students to be 129.58±21.95. In a study conducted with 1132 young individuals in 17-25 age group, Gil-Madrona *et al.* (2019) found a complex relationship between physical activity, health-related habits and free time among youth, and underlined the need to encourage physical activity as a healthy alternative for young individuals.

With a study group composed of 1454 secondary school students, Yayan and Altun (2013) found higher levels of quality of life among teenagers who participated in physical exercise compared to those who did not, among boys compared to girls, among those who regularly had breakfast compared to those who did not and those who made good use of their spare time,

compared to those who did not. In a study titled, 'Health promoting lifestyle behaviours and quality of life among healthy women', Savoy *et al.* (2015) observed a negative relationship between depressive behaviours and healthy lifestyle behaviours. In the paper of Özkul and Günüşen (2019) it concluded that the adolescents usually had medium levels of quality of life.

Eime *et al.* (2013) noted that, among children and teenagers in a wide age group, the athletes associated with sports clubs were registering particularly better quality of life levels. Therefore, one can expect different levels of quality of life and healthy lifestyles among individuals who are engaged in sports and those who are not. Based on this perspective, the research question the present study focuses on to what extent the quality of life of high school students engaged in healthy lifestyle behaviours are superior to those who do not engage in healthy lifestyle behaviours and whether or not being a licensed athlete has an effect within this context.

The review of high school students' healthy lifestyle behaviours and quality of life will produce significant data on these crucial indicators of health, to enable the assessment of sports activities by high school students in terms of their effect on healthy lifestyle and quality of life. In so doing it will enable the development of specific recommendations for raising healthier generations.

a. The research is designed around five fundamentals in high school.
b. What is the level of quality of life for students enrolled in high school?
c. Are the HPLP levels and quality of life of high school students correlated?
d. Does engagement in sports as a licensed athlete lead to a different level of HPLP for the students?
e. Does engagement in sports as a licensed athlete lead to a different level of quality of life for the students?

PURPOSE OF RESEARCH

The present study intends to serve two fundamental purposes. The first is to assess the healthy lifestyle behaviours of high school students, investigating whether the development of healthy lifestyle behaviours on the part of the students that would lead to an increase in their quality of life. The second purpose is to understand whether engagement in sports as a licensed athlete leads to any difference in terms of healthy lifestyle behaviours and quality of life.

METHODOLOGY

Ethical aspects

The Non-Invasive Clinical Research Ethics Board granted approval for the study, with approval no. 2020/152 dated 17.7.2020. The students included in the study were provided information about the purpose of the study, and written permission was obtained from both students and their parents. The privacy and confidentiality of information belonging to students were respected at every stage of the study.

Data collection

The data analysed in the study was collected by means of the 'Personal Information Form', 'Health Promoting Lifestyle Profile-II (HPLP-II)' and the Pediatric Quality of Life Inventory

(PedsQL - Adolescent Form)'. Once approval required for the study were obtained, the high schools (ordinary high school, science high school, social science high school, fine arts high school, vocational high school and sports high school) in the city of Rize were visited during the academic year 2020-2021, to provide information to the students regarding the purpose of the study, and to apply the surveys. Among these, the data pertaining to Sports High School students were gathered remotely using a Google Docs form, due to the restrictions imposed in relation to Covid-19 pandemic.

Data collection tools

Personal information form
This form was developed by the researcher and contains questions about a number of independent variables, such as gender, age, year, type of high school the student is enrolled in and licensed athlete status.

Health Promoting Lifestyle Profile-II (HPLP-II):
The scale is built on the health promotion model developed by Walker *et al.* (1987) and then revised in 1996 (Walker & Hill-Polerecky, 1996), for the purpose of assessing the individuals' health promotion behaviour. The scale was then adapted into the Turkish language in 2008, with Bahar *et al.* (2008) performing the required validity and reliability assessment. Assessing the health promotion behaviours on part of the individual, the scale is comprised of 52 items that are divided into 6 sub-scales. These sub-scales are nutrition, physical activity, spiritual growth, interpersonal relations, health responsibility and stress management. The total score received in the scale reflects the level of the healthy lifestyle behaviours exhibited by the individual. All items used in the scale are formulated as positive statements.

The rating is based on a 4-point Likert scale. The answers to the statements are scored on a scale ranging from routinely very often (4), often (3), sometimes (2), and never (1). The lowest and highest scores possible are 52 and 208, respectively. The scale's Cronbach's Alpha reliability factor is 0.94. The Cronbach's Alpha reliability factors for the sub-scales vary from 0.79 to 0.87 (Bahar *et al*., 2008).

The Cronbach's Alpha reliability factor for the scale used in the present study was found to be 0.91, while those of the sub-scales were 0.79 for health responsibility, 0.84 for physical activity, 0.70 for nutrition, 0.75 for spiritual growth, 0.73 for interpersonal relations, and 0.69 for stress management.

Pediatric Quality of Life Inventory (PedsQL):
The scale was developed by Varni *et al*. (1999) to assess the health-related aspects of quality of life among children and teenagers in the 13-18 age group. Later, Memik *et al.* (2007) investigated the validity and reliability analysis of the adolescent and parent form (PedsQL 13-18) of the Pediatric Quality of Life Inventory for Turkey, finding the Cronbach's alpha for the adolescent form to be 0.82.

The Cronbach's alpha reliability factors for individual sub-scales in the context of this study were found to be 0.7 for physical health, 0.84 for psychosocial health, and 0.87 for the total score received with the scale.

The Pediatric Quality of Life Inventory investigates the social functioning, emotional functioning, school functioning and physical functioning among the core dimensions of health, as defined by the World Health Organisation. The inventory is scored on the basis of

three factors. First of all, the total score for physical health (PHTS) is calculated, to be followed by the psychosocial health score (PSHS), which is a combination of the scores for emotional functioning (EFS), social functioning (SFS) and school functioning (ScFS). Finally, the total score for the scale (TS) is calculated. The items in the inventory are scored in the 0-100 range. The statement is scored with 0 for "almost always", 25 for "often", 50 for "sometimes", 75 for "almost never", and 100 for "never". The higher the PedsQL score, the higher would be the perceived level of health-related quality of life (Varni *et al.* 2001).

Population/Sample

The study population consists of 7999 students enrolled in the high schools in the city of Rize in the academic year 2020-2021. The study is based on simple random sampling, a leading method in the larger family of probability sampling methods. Simple random sampling is based on the premise that each unit in the main population should have an equal chance of being included in the sample. In simple random sampling, the sample size can be set through two distinct approaches, based on two distinct assumptions. The study is designed on the premise that the difference between the average score for the sample and that of the main population is not higher than a certain value at a specific level of probability. In cases where the variance score for the main population is not known when calculating the sample size, the following formula can assist in calculating the sample size (İslamoğlu & Alnıaçık, 2019):

$$n = \frac{Nz^2 . \text{pq}}{Nd^2 + z.pq}$$

N= Population size,
p= The rate of those with a certain characteristic in a random sample
q= 1-p
d= Sensitivity level
z= Estimated reliability range

In estimating the average score for a population of 7999 units, with reference to a random sample to be taken out of that population, at a sensitivity rate of 5%, confidence range of 95%, and z=1.96, assuming a incidence rate of 0.5 (p) and non-incidence rate of 0.5 (q), it was determined that at least 375 participants were required for the study sample.

$$n = \frac{7.999 . (1.96^2) . (0.5) . (0.5)}{7.999 . (0.05)^2 + 1.96 . (0.5) . (0.5)} = 375$$

A total of 1200 students from six different high schools were interviewed within the scope of the research. Of these, data was collected from 857 students (71%). The data pertaining to 33 students were found to be incomplete, incorrect or in a random way were not included in the analysis. As a result, the final sample included in the study is composed of 824 students. The sample size is deemed to be large enough to represent the study population.

Research model

The study is based on screening the whole population or a group or sample out of the larger population, with a view to developing a general judgment about the population involving a large number of participants with respect to a subject or event (Karasar, 2016). The data was collected through surveys, which is commonly employed as a tool in the context of screening (Nachmias & Nachmias, 1996). The conceptual model presented in Figure 1 was developed to determine whether licensed athlete status leads to a difference in terms of healthy lifestyle

behaviours and the quality of life and to assess the relationship between healthy lifestyle behaviours and the quality of life.
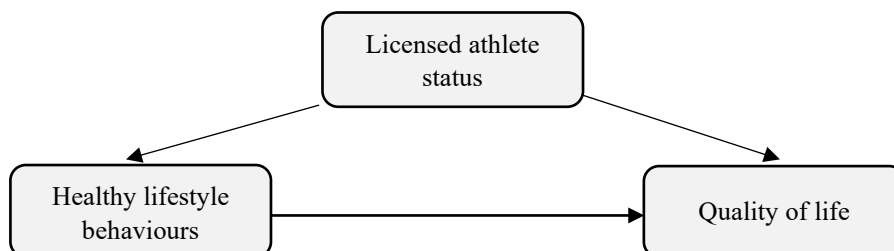

Figure 1.   **RESEARCH MODEL**

Hypotheses

H_1: The average scores of the students with respect to the sub-scales of the Health Promoting Lifestyle Profile would be in the moderate score range.

H_2: The average scores of the students with respect to the sub-scales of Quality of Life Inventory would be in the moderate score range.

H_3: There is a moderately strong relationship between the students' scores in the sub-scales of Health Promoting Lifestyle Profile and the sub-scales of Quality of Life Inventory.

H_4: The licensed athlete status leads to variations in the health promoting lifestyle behaviours of students.

H_5: The licensed athlete status leads to variations in the quality of life of students.

Data analysis

The data collected in the present study were analysed through SPSS (Statistical Package for Social Sciences) 26.0 software. The statistical tests used to assess if the data exhibit a normal distribution (Kolmogorov Smirnov-Shapiro Wilks) can lead to significant results within larger samples, even if the distribution varies from a normal one within a very small margin. That is why the test results should be evaluated in the light of skewness and kurtosis (İslamoğlu & Alnıaçık, 2019).

To ensure a normal distribution of data, the Skewness and Kurtosis values were taken into account, on the basis of the requirement for them to be in the -2 to +2 range as suggested by George and Mallery (2010). According to Özdamar (2015) the Shapiro-Wilk test or Anderson Darling test should be applied for normality checks in any power comparison with larger samples (n>25). The present study opted for the Shapiro-Wilk test for this purpose.

The results of the normality test, as well as the skewness and kurtosis values reveal that the data exhibits a normal distribution. Furthermore, according to the results of the Levene test, the variance levels were found to be homogenous. The analyses were preceded with an assessment of the assumptions required to ensure the applicability of the MANOVA test. In this context, single- and multi-variable normality, variance-covariance matrix homogeneity, linearity and multicollinearity analyses were made (Pallant, 2005; Büyüköztürk, 2013). The dependent variables' histograms, skewness and kurtosis values, Levene test and box m test

values were reviewed separately for single-variable normality. The preliminary analyses did not reveal any violations.

The data analysis was based on the average scores established through the answers 824 participants provided in response to scale questionnaires, with the application of the descriptive statistics, one-way analysis of variance (one-way ANOVA), MANOVA and Pearson correlation analyses. The significance level adopted was α=0.05.

RESULTS

A total of 824 students took part in the study. The distribution of these students on the basis of gender and licensed athlete status is as follows: 54% (N=443) of the participants are female and 46% (N=381) are male, while 67% (N=554) of the participants are not licensed athletes while 33% (N=270) are.

Findings: Hypothesis 1

Descriptive statistics were applied to determine the average scores the high school students attained in the HPLP scale. The results are presented in Table 1.

Table 1. **DESCRIPTIVE SCORES IN HEALTH PROMOTING LIFESTYLE PROFILE (HPLP)**

Sub-Scales	N	Mean±SD	Min–Max
Health responsibility	824	17.32±5.02	2.00–36.00
Physical activity	824	16.35±5.58	8.00–32.00
Nutrition	824	18.76±4.59	3.00–36.00
Spiritual growth	824	24.83±5.41	9.00–62.00
Interpersonal relations	824	23.90±4.76	9.00–36.00
Stress management	824	18.39±4.12	8.00–32.00
Total HPLP Score	824	119.56±22.14	52.00–194.00

The average Total HPLP Score is 119.56±22.14. The average scores for sub-scales are as follows: 17.32±5.02 for Health Responsibility; 16.35±5.58 for Physical Activity; 18.76±4.59 for Nutrition; 24.83±5.41 for Spiritual Growth; 23.90±4.76 for Interpersonal Relations; and 18.39±4.12 for Stress Management. A glance at Table 1 reveals that the average total HPLP scores were moderate. Furthermore, the average scores for the Spiritual Growth and Interpersonal Relations sub-scales were found to be above the moderate level.

Findings: Hypothesis 2

Descriptive statistics were applied to determine the high school students' quality of life levels. The findings are presented in Table 2.

The students' average total quality of life score is 71.71±14.31. The average scores for individual sub-scales are: 64.46±24.99 for Emotional Functioning; 86.92±16.28 for Social Functioning; 60.84±21.04 for School Functioning; 73.52±14.62 for Total Score for Physical

Health; and 70.74±16.27 for Total Score for Psycho-Social Health. A glance at Table 2 revealed that they received moderate average scores regarding the total quality of life and emotional, as well as school functioning, while social functioning average scores were higher.

Table 2. DESCRIPTIVE SCORES FOR PEDIATRIC QUALITY OF LIFE INVENTORY

Sub-Scales	N	Mean±SD	Min–Max
Emotional Functioning	824	64.46±24.99	0.00–100.00
Social Functioning	824	86.92±16.28	15.00–100.00
School Functioning	824	60.84±21.04	0.00–100.00
Overall Score Physical Health	824	73.52±14.62	6.25–143.75
Overall Score Psycho-social Health	824	70.74±16.27	8.33–100.00
Total Quality of Life Score	824	71.71±14.31	7.61–106.52

Findings: Hypothesis 3

To assess whether a significant correlation exists between the healthy lifestyle behaviours of high school students and the specific domains of quality of life, Pearson product moment correlation factor was used at a significance level of $p < 0.05$ (Table 3).

Table 3. ANALYSIS OF CORRELATION BETWEEN HEALTHY LIFESTYLE BEHAVIOURS AND SUB-SCALES OF QUALITY OF LIFE

		SUB-SCALES OF QUALITY OF LIFE					
		EFS	SFS	ScFS	PHTS	PSHS	TS
Total HPLP Score	r	**0.085[*]**	**0.148[**]**	0.065	**0.215[**]**	**0.121[**]**	**0.166[**]**
	p	0.014	0.000	0.061	0.000	0.000	0.000
	n	824	824	824	824	824	824

** Correlation significant at 0.01 level (2-tailed)   * Correlation significant at 0.05 level (2-tailed)
HPLP=Health promoting lifestyle profile   EFS=Emotional Functioning   SFS=Social functioning
ScFS=School Functioning   PHTS=Physical Health   PSHS=Psycho-social health   TS=Total score

The normality and linearity assumptions were checked with the preliminary analyses applied. A review of Table 3 would reveal a positive but low level of correlation between healthy lifestyle and Emotional Functioning, Social Functioning, Physical Health, Psycho-Social Health, and Total Score for Quality of Life (r=0.08, p<0.05; r=0.148, p<0.01; r=0.215, p<0.01; r=0.121, p<0.01; r=0.166, p<0.01 respectively). According to these findings, there is a low-level correlation between the healthy lifestyles and their quality of life.

Findings: Hypothesis 4

The results of the MANOVA test applied to see if the licensed athlete status has an effect on various sub-scales of the HPLP scale, are presented in Table 4.

Table 4.   **MANOVA TEST COMPARING HEALTHY LIFESTYLE BEHAVIOURS OF LICENSED ATHLETE STATUS STUDENTS**

Wilks' Lambda	F	Hypothesis df	Error df	*p*
0.800	34.074	6	817	**0.000**

The MANOVA test applied on sub-scales of HPLP shows that the participants' scores for the sub-scales of HPLP varied with reference to the licensed athlete status (WilksL (λ)=0.800; $F(6.817)=34.074$; $p<0.05$). This results show that the scores to be obtained from the linear component comprised of the scores for sub-factors, vary with reference to actual engagement in sports.

Table 5.   **ANOVA TEST COMPARING HEALTHY LIFESTYLE BEHAVIOURS OF LICENSED AND NON-LICENSED ATHLETES**

Sub-Scales	Licensed Status	N	Mean±SD.	F	p
Health responsibility	Yes	270	18.22±5.48	13.21	**0.00**
	No	554	16.88±4.72		
Physical activity	Yes	270	19.75±6.03	181.15	**0.00**
	No	554	14.69±4.50		
Nutrition	Yes	270	19.79±4.78	20.71	**0.00**
	No	554	18.26±4.42		
Spiritual growth	Yes	270	25.52±5.73	6.74	0.01
	No	554	24.48±5.22		
Interpersonal relations	Yes	270	24.11±5.09	0.75	0.385
	No	554	23.80±4.60		
Stress management	Yes	270	19.16±4.48	14.36	**0.00**
	No	554	18.01±3.89		
Total: Healthy Lifestyle Behaviour	Yes	270	126.28±24.90	42.35	**0.00**
	No	554	116.14±19.80		

As a significant difference was found in the MANOVA test, ANOVA test was also applied to see how the group averages varied with reference to the licensed athlete status are presented in Table 5. The analysis of the results obtained for individual dependent variables separately for the Bonferroni adjusted alpha of 0.008, the results of the ANOVA test revealed significant variation in the participants' scores for Health Responsibility, Physical Activity, Nutrition, and Stress Management sub-scales, as well as their total scores for healthy lifestyle

(F(1.822)=13.21, p=0.00; F(1.822)=181.15, p=0.00; F(1.822)=20.71, p=0.00; F(1.822)= 14.36, p=0.00; F(1.822)=42.735, p=0.00).

On examining the results in Table 5, it was observed that, respectively, in the Health responsibility sub-dimension, the average scores of those who do sports with a license (χ=18.22) with respect to those who do not do sports with a license (χ=16.88). In the physical activity sub-dimension, the average scores of those who do sports with a license (χ=19.75) and those who do not do sports with a license (χ=14.69) were achieved. In the nutrition sub-dimension, the average scores of those who do sports with a license (χ=19.79), those who do not do sports as licensed (χ=18.26) were attained.

In the stress management sub-dimension, the average scores of those who do sports with a license (χ=19.16) are significantly higher with respect to those who do not do sports as licensed (χ=18.01).

It was also observed that in terms of Healthy Lifestyle Behaviour Total Score the average scores of those who do sports with a license (χ=126.28) are significantly higher than those who do not do sports with a license (χ=116.14).

Findings: Hypothesis 5

The results of the MANOVA test applied to see if the licensed athlete status has an effect on various sub-scales of the quality of life scale, are presented in Table 6.

Table 6. **MANOVA TEST COMPARING QUALITY OF LIFE OF VARIOUS GROUPS OF STUDENTS, REFERING TO LICENSED ATHLETES**

Wilks' Lambda	F	Hypothesis df	Error df	p
0.930	15.314	4	819	**0.000**

The MANOVA test applied on sub-factors of the quality of life scale shows that the participants' scores for the sub-factors of the quality of life scale varied with reference to the licensed athlete status (WilksL(λ)=0.930; F(4.819)=15.314; p<0.05). This result shows that the scores to be obtained from the linear component comprised of the scores for sub-factors vary with reference to actual engagement in sports.

As a significant difference was found in the MANOVA test, ANOVA test was also applied to see how the group averages varied with reference to the licensed athlete status, producing the results presented in Table 7.

The analysis of the results obtained for individual dependent variables separately for the Bonferroni adjusted alpha of 0.016, the results of the ANOVA test revealed significant variation in the participants' scores for all sub-scales (effectively 3 sub-scales as the psychosocial score is a combination of emotional, social and school functioning sub-scales) [F(1.822)=9.62, p=0.00; F(1.822)=12.62, p=0.00; F(1.822)=6.08, p=0.00; F(1.822)=58.67, p=0.00; F(1.822)=14.80, p=0.00; F(1.822)=30.87, p=0.00)].

When the results are examined, it can be seen that the mean scores of high school students who do sports with licenses are significantly higher than those who do not do sports with license in terms of all sub-dimensions and Total Quality of Life Score.

Table 7. **ANOVA TEST COMPARING QUALITY OF LIFE OF VARIOUS GROUPS OF STUDENTS, REFERRING TO LICENSED ATHLETES**

Sub-Scales	Licensed Athlete	n	Mean±SD	F	p
Emotional Functioning	Yes	270	68.31±24.12	9.62	**0.00**
	No	554	62.59±25.21		
Social Functioning	Yes	270	89.79±13.19	12.62	**0.00**
	No	554	85.53±17.43		
School Functioning	Yes	270	63.42±21.48	6.08	**0.014**
	No	554	59.58±20.72		
Overall Score for Physical Health	Yes	270	78.92±14.06	58.67	**0.00**
	No	554	70.88±14.16		
Overall Score for Psycho-Social Health	Yes	270	73.84±15.26	14.80	**0.00**
	No	554	69.23±16.54		
Total Quality of Life Score	Yes	270	75.61±13.63	30.87	**0.00**
	No	554	69.81±14.27		

DISCUSSION

The present study is designed to understand the relationship between the healthy lifestyle behaviours and the quality of life of high school students, and to assess the impact of licensed athlete status on healthy lifestyle behaviours and the quality of life. The results show that the students' average scores for the spiritual growth and interpersonal relations sub-scales are above the moderate level, while they demonstrate moderate average scores regarding all other sub-scales of HPLP. In the same vein, their average total HPLP scores (119.56±22.14) were also moderate. This finding supports hypothesis H_1. One can confidently claim that the students do not experience major problems in terms of establishing connections and employing their ability to conform. They enjoy commendable skills of communicating and sharing their emotions. However, they could benefit from developing certain forms of behaviour and attitudes, such as embracing responsibility for their wellness, and handling their health with diligence.

A review of the literature revealed a number of studies using the same scale as was used for the present study. In their study with high school students, Dil *et al.* (2015) found the students' total HPLP scores to be 128.0±19.1, and their average scores for other sub-scales of HPLP to be moderate. Similarly, Uzun (2015) found the students' average total HPLP scores to be 129.5±21.9, and their average scores for other sub-scales of HPLP to be moderate. Even though the findings of the above-mentioned studies are similar to those of the present study, the average total HPLP scores of the high school students participating in the present study are markedly lower.

The students' average total quality of life scores were 71.71±14.31, while their average scores for emotional and school functioning were moderate, unlike their social functioning average scores, which was found to be high. These findings support hypothesis H_2. These results suggest that the students have fairly strong relationships with their peers, and do not have much problem in developing social bonds with each other. With specific reference to the

school functioning sub-scale that were found to be moderate, albeit lower than those of other sub-scales, one can underline the need to reinforce the students' relationships with their classes and the school. Özkul and Günüşen (2019) found the average total score received in the scale to be 60.76 ± 16.17 where it concerned adolescents with cancer. Such a score suggests that these adolescents had a moderate level of quality of life, in parallel to the findings of the present study. The results of that study are considered comparable to those of the present one, given the similarity of the age groups involved and the fact that the same scale was used.

Weak correlations were found between healthy lifestyle and emotional functioning ($r=0.08$, $p<0.05$), social functioning ($r=0.148$, $p<0.01$), physical health ($r=0.215$, $p<0.01$), psycho-social health ($r=0.121$, $p<0.01$), and total score for quality of life ($r=0.166$, $p<0.01$). This refutes the hypothesis H_3 even though the correlation was found to be weak, the physical health of the students would still be expected to improve as they embrace healthy lifestyle behaviours. This suggests that there is an awareness about the requirements of health, a careful attitude towards one's diet and a marked ability to manage and control one's stress that would lead to better physical health. Çakır and Kalkavan (2020) found a moderate and positive relationship between university students' total HPLP scores and their total quality of life scores that is not consistent with those of the present study.

The test results reveal that high school students' average HPLP scores vary significantly with reference to them being licensed athletes or not. The scores to be obtained from the linear component comprised of scores for sub-factors that vary with reference to actual engagement in sports (WilksL(λ)=0.800; F(6.817)=34.074; $p<0.05$). This finding supports hypothesis H_4. Pertaining to individual sub-scales, the results revealed statistically significant variations in the average scores for health responsibility, physical activity, nutrition, stress management, and total HPLP scores ($\chi=126.28$), to the benefit of the students engaged in sports. The students engaged in sports are, arguably, better in terms of managing stress and controlling their dietary habits, compared to students who are not engaged in sports.

The quality of life of high school students vary with reference to them being licensed athletes or not. This result indicates that the scores to be obtained from the linear component comprised of the scores for sub-factors vary with reference to actual engagement in sports (WilksL (λ)=0.930; F(4.819)=15.314; $p<0.05$). This finding supports hypothesis H_5.

Analysed one by one, the results pertaining to individual sub-scales revealed statistically significant variations in average scores for all sub-scales, as well as the overall score for quality of life ($\chi=75.61$), indicating better results among students engaged in sports. The students engaged in sports as licensed athletes had, not surprisingly, higher average physical health scores compared to those who were not licensed athletes. In addition, the emotion control and sleep quality scores of the students who were engaged in sports were higher compared to those who were not engaged in sports. Based on this observation, one can argue that sports contribute not only to physical but also to emotional development of individuals. Bize *et al*. (2007) found that adults with high levels of physical fitness enjoyed higher levels of quality of life, and that a significant correlation existed between the level of physical activity and the quality of life associated with health.

CONCLUSION

In conclusion, the present study found lower average healthy lifestyle behaviours scores (119.56 ± 22.14.) for high school students, compared to the findings of other studies in the literature. However, the students were found to have no issues with building strong

relationships with their peers and achieving conformity, as well as developing social bonds with each other (communicating and sharing emotions). One can argue that high school students would enjoy a higher level of quality of life, by developing healthy lifestyle behaviours, even though the correlation between the two variables is weak (r=0.166, p<0.01). Sport was found to play an effective role instilling in and sustaining healthy lifestyle behaviours among these high school students, as well as helping them maintain a higher life quality.

RECOMMENDATIONS

It is recommended that high school students exercise and engage in sports more frequently and for longer periods of time. More careful perspectives towards regulating their diet and a more active outlook towards physical activity would help enhance their awareness levels about health. Doing so would probably aid in preventing them being impacted by health problems, such as obesity in the later decades of their lives.

The present study is limited in terms of its geographical scope where only students from the state-owned high schools in the city of Rize took part. Subsequent studies need to work with samples that include students of private high schools and students in other provinces, so as to examine the phenomenon from a wider perspective. Future studies can also engage in extended analyses by including other variables, such as gender, sporting code and body mass index in the focus of the study.

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